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ABSTRACT

Among the Internet's many resources is the World Wide Web, a global network of information servers provided by individuals, organizations, businesses, and federal agencies who are offering documents, data, images, and interactive sessions. For teachers, students, and parents this means access to information not in textbooks or the local library, fast-breaking news, ideas for lessons and activities, and collaboration with others on projects of mutual interest. This digest provides an annotated listing of Web resources relating to mathematics education. Though not an exhaustive list of what is available, these sites represent a range of resources and are excellent places to begin a journey through the web of interconnected sites. The list is organized by the following categories: (1) Comprehensive Sites; (2) Organizations and Centers; (3) For Parents and Children; (4) Lessons, Activities, and Resources; (5) Interactive Sites and Collaborative Projects; (6) Interesting and Unique Sites; and (7) Directories. (JRH).

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Mathematics Education Resources on the World Wide Web

by
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U.S. DEPARTMENT OF EDUCATION
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Mathematics Education Resources on the World Wide Web

David L. Haury & Linda A. Milbourne

September 1996

ERIC Clearinghouse for Science, Mathematics, and Environmental Education DIGEST

The best aspect of the Internet has nothing to do with technology. It's us. Steven Levy

If 1995 was The "Year of the Internet" (*Newsweek*, Jan. 1, 1996), for educators it is quickly becoming the era of information-on-demand and collaboration-at-a-distance. Among the Internet's many resources is the World Wide Web, a global network of information "servers" provided by individuals, organizations, businesses, and federal agencies who are offering documents, data, images, and interactive sessions. For teachers, students, and parents, this means access to information not in textbooks or the local library, fast-breaking news, ideas for lessons and activities, and, best of all, collaboration with others on projects of mutual interest.

Here we provide an annotated listing of Web resources relating to mathematics education. Though not an exhaustive list of what is available, these sites represent the range of resources, and they are excellent places to begin your own journey through the web of interconnected sites.

Comprehensive Sites

The Math Forum

http://forum.swarthmore.edu/

Offers a large searchable database and Ask Dr. Math, a question-answering service. For teachers, students, parents, researchers.

Mathematics Archives

http://archives.math.utk.edu/

Good place to start a search; includes educational software, laboratory notebooks, problem sets, lecture notes, and an extensive hotlist of K-12 teaching materials. Useful to mathematicians, educators, students, and researchers.

The Geometry Center

http://www.geom.umn.edu/welcome.html

Offers multimedia documents; a downloadable software graphics archive; course materials; workshops, seminars, and courses; and news about events. Useful to mathematicians, students, and educators.

MathSource

http://mathsource.wri.com/

Provides over 100,000 pages of Mathematica programs, documents, examples, etc. Browse or search the archive by author, title, keyword, or item number. Useful to mathematicians, software users, students, educators, and engineers.

Schoolnet: Math Deprtment

http://www.schoolnet.ca/math_sci/math/

Offers a searchable database of teaching materials and a hotlist of math-related Websites, from "Math Art" to "Word Problems for Kids."

The Schools of California Online Resource for Educators: Mathematics

http://www.kings.k12.ca.us/math/

Extensive, searchable database of lesson plans, activities, projects, etc. by grade level. Other databases of assessment tools and organizations. Submissions are invited.

Organizations & Centers

American Mathematical Society

http://e-math.ams.org/

Offers an extensive array of services and guides to the literature in mathematics. A resource for mathematicians and matematics educators.

MAA Online

http://www.maa.org/

Site of the Mathematical Association of America. See the online version of *Quantitative reasoning for college graduates: A complement to the Standards*. It addresses the goal of quantitative literacy for college students. Useful to college mathematics educators and others.

Eisenhower National Clearinghouse for Mathematics and Science Education

http://www.enc.org

Supported by the U.S. Departmentof Education, this site offers curriculum resources in support of reform efforts in math and science. Provides an online copy of the NCTM standards for K-12 mathematics. For K-12 educators and students.

ERIC Clearinghouse for Science, Mathematics, and Environmental Education

http:www.ericse.org

Supported by the U.S. Department of Education, this site offers documents, links to other sites in the ERIC system, and access to the world's largest database of education-related materials. Useful to anyone interested in education.

NCTM Home Page

http://www.nctm.org/

The National Council of Teachers of Mathematics offers an array of services and a catalog of materials for teachers and specialists in mathematics education.

Mathematical Sciences Education Board

http://xerxes.nas.edu/mseb/mseb.html

This National Research Council site offers general information, publications, and news releases. Useful to teachers and math specialists.

Institute for Mathematics and Science Education

http://babe.math.uic.edu/IMSE/

Devoted to the Teaching Integrated Math and Science (TIMS) project for elementary school teaching and related programs. For mathematics teachers and specialists at all levels.

For Parents and Children

A Math Website! For Middle School Students

http://www.umd.umich.edu/~jobrown/math.html

Provides an annotated listing of fun and interesting web sites. A great place to search for resources for children.

Kids Web—Mathematics

http://www.infomall.org/kidsweb/math.html

A meta-index of quality resources and links. This site provides a broad range of articles, games, puzzles, and demonstrations to explore math, from the origins of algebra and geometry to new innovations in chaos theory and fractals.

Mathematics to Prepare Our Children for the 21st Century

http://dimacs.rutgers.edu/nj_math_coalition/pguide/pguide.html

An electronic booklet that includes activities for parents to do with their children, ways of helping children with mathematics, and more.

Treasure Trove of Mathematics

http://www.planetary.caltech.edu/~eww/math/math.html

One person's virtual "encyclopedia" of mathematics information and tidbits arranged alphabetically. Fascinating to browse.

Lessons, Activities, and Resources

Appetizers and Lessons for Math and Reason

http://www.cam.org/~aselby/lesson.html

A massive collection of short items, sometimes funny and very clear. The site also offers reflections on teaching and using the site in lessons. Useful to high school math students and teachers

The Schoolhouse Classroom: Mathematics

http://www.nwrel.org/school_house/Classroom/Mathematics/Mathematics.html

Searchable by menu, topic, and keyword, this site provides lesson plans, materials, papers, projects, and more. Large hotlist of links to state, national, and international standards.

AIMS Education Foundation

http://204.161.33.100/

The Activities Integrating Mathematics and Science Education Foundation publishes books and a magazine for educators. This site includes sample activities and lesson plans, puzzles for classroom use, and links to other education sites.

Busy Teacher's Website K-12: Mathematics
http://www.ceismc.gatech.edu/BusyT/math.html
Fascinating collection of links to sites on fractals, games and toys, history, lesson plans, and classroom activities. Great resource for teachers.

Secondary Mathematics Assessment and Resource Database
http://cq-pan.cqu.edu.au/schools/smad/smad.html
Offers a database of authentic assessment tools and activities submitted by teachers, searchable by keywords and menus. Also, tips for teachers, puzzles, software, and links to related Websites.

Math Teacher Link
http://www-cm.math.uiuc.edu/MathLink/
Web page for a professional development forum for mathematics teachers.

Mathematics, Science, and Technology Education
http://www.mste.uiuc.edu/MSTEintro.html
Offers a directory of centers, graduate programs, and other internet resources. Of particular interest to teachers are the K-12 statistics page and the K-12 mathematics lessons.

Interactive Sites & Collaborative Projects

Science And Math Initiatives (SAMI)
http://www.c3.lanl.gov/~jspeck/SAMI-home.html
Part of a project to improve math and science education and resource access in rural settings. This database serves as a clearinghouse of resources, funding, and curriculum for rural math and science teachers.

Cornell Math and Science Gateway for Grades 9-12
http://www.tc.cornell.edu/Edu/MathSciGateway
Useful page for teachers with computers in the classroom. Most links are for teens, but some are on curriculum and teaching strategies. Useful to high school teachers, students, and parents.

Midlands Improving Math and Science
http://scssi.scetv.org/mims
Offers a searchable database of plans, puzzles, and other resources useful to teachers, K-12 administrators, and other specialists.

The Mathematics On-Line Bookshelf
http://mathbookshelf.fullerton.edu
Offers a searchable database of math books.

Interesting and Unique Sites

Mega Mathematics
http://www.c3.lanl.gov/mega-math/menu.html
Engages elementary school teachers and students with unusual and important ideas on the frontier of mathematics.

Favorite Mathemtical Constants
http://www.mathsoft.com/asolve/constant/constant.html

About Today's Date
http://acorn.educ.nottingham.ac.uk/cgi-bin/daynum
Facts and events associated with the numbers of each date. Of interest to curious people of all ages.

Fibonocci Numbers and Nature
http://www.ee.surrey.ac.uk/Personal/R.Knott/Fibonacci/fibnat.html
References to technical papers, activites with vegetables and fruit, and links to other Websites.

MathMol Home Page
http://www.nyu.edu/pages/mathmol/
Software, activities, hypermedia and more relating to the emerging field of molecular modeling. For teachers, developers of instuctional materials, and others interested in molecular modeling.

MacTutor History of Mathematics
http://www-groups.dcs.st-and.ac.uk:80/~history/
Provides the biographies of over 550 mathematicians. Of particular interest to mathematicians, math educators, historians, and biographers.

History of Mathematics
http://aleph0.clarku.edu/~djoyce/mathhist/mathhist.html
Over 1,000 important mathematicians, searchable by name, chronology, or geographic region. Hotlist of sites containing bibliographies and historical references. Useful to mathematicians, math educators, historians, and enthusiasts.

Directories

A Catalog of mathematics resources on WWW and the Internet
http://mthwww.uwc.edu/wwwmahes/files/math01.htm
A massive list of links to mathematics and mathematics education sites worldwide. One section of the "catalog" is devoted to math teaching, math education, and math student servers.

Yahoo! Mathematics Resources
http://www.yahoo.com/Science/Mathematics/
Offers a searchable database of links of value to anyone searching for mathematics resources.

Directory of Mathematics Resources
http://galaxy.einet.net/galaxy/Science/Mathematics.html
Part of the Galaxy guide to WWW information and services. Provides an extensive directory of web links to collections of materials, periodicals, organizations, and other directories.

Blue Web'n Applications: Mathematics WebResource
http://www.kn.pacbell.com/cgi-bin/listApps.pl?Mathematics&WebResource
This site by Pacific Bell Knowledge Network provides an annotated list of sites, with ratings.

Directory of Mathematics Links
http://euclid.math.fsu.edu/Science/math.html
Part of the WWW Virtual Library, this site offers an extensive collection of links to online materials, including high school servers, gopher servers, newsgroups, electronic journals, a software index, bibliographies, and more.

Mathematics Sources
http://www.math.upenn.edu/MathSources.html
Provides sources grouped into Preprint Archives, Database Gateways, Organizations, Mathematics Departments, and other categories. Useful for educators and specialists.

Mathematics Information Servers
http://www.math.psu.edu/OtherMath.html
Perhaps the most comprehensive listing of electronic resources worldwide for mathematics. Particularly useful for mathematicians, educators, and specialists in mathematics education.

Mathematics Education International Directory
http://acorn.educ.nottingham.ac.uk//SchEd/pages/gates/names.html
Contact information for many mathematics educators worldwide, with e-mail addresses. Sponsored by the University of Nottingham, UK; searchable by country and organization.

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